

## UV Ground- and Space-Based Measurements, Models, and Effects (AM100)

*Part of SPIE's International Symposium on  
Optical Science and Technology*

29 July– 3 August 2001 • San Diego Convention Center • San Diego, California USA

*Cooperating Organizations:* **U.S. Dept. of Agriculture, UV-B Monitoring Program and NASA Goddard Space Flight Ctr., Earth Probe TOMS Program**

*Conference Chairs:* **James Slusser**, Colorado State Univ.; **Jay R. Herman**, NASA Goddard Space Flight Ctr.; **Wei Gao**, Colorado State Univ.

*Program Committee:* **Germar Bernhard**, Biospherical Instruments Inc.; **Gordon M. Heisler**, USDA Forest Service; **Richard McKenzie**, National Institute of Water & Atmospheric Research (New Zealand); **Knut H. Stamnes**, Stevens Institute of Technology; **Petteri Taalas**, Finnish Meteorological Institute (Finland); **Christos S. Zerefos**, Aristotle Univ. of Thessaloniki (Greece)

The expected recovery of the ozone layer due to reduced emissions of CFCs may be delayed until at least 2020 because of the cooling of the polar stratosphere resulting from greenhouse warming of the troposphere. Since 1979, ozone has declined moderately at mid-latitudes and precipitously in polar regions. Increased surface UVB irradiances (290 - 320 nm) have been measured in Barrow, Alaska and Toronto, Canada and inferred for high- and mid-latitudes from satellite measurements of backscattered UV. Concerns that increased level of UVB are harmful to the biosphere have led to the development of ground- and space-based measurement programs to provide long-term data of UVB reaching the earth's surface. Considerable effort has been put into determining the effects of increased UVB on plants, humans, and ecosystems. More work is needed in this area, especially in determining how increased UVB interacts with other stressors such as drought, increased temperatures, and CO<sub>2</sub>. Detecting mid-latitude UVB trends is difficult because clouds and aerosols cause considerable UV variations from year to year, and have a comparable effect on UVB from variations in stratospheric ozone (e.g., interannual QBO effect). Satellite platforms such as TOMS provide global maps of UVB and UVA irradiances by combining measurements of backscattered UVB and UVA radiances from space with models. Radiative transfer models predict UV surface irradiances, but are often limited by insufficient knowledge of physical input parameters.

This conference will encourage discussion of the multidisciplinary research being undertaken in:

- ground-based, satellite-based, and modeling UV studies,

especially those making comparisons among these three main areas

- the effects of aerosols (absorbing and nonabsorbing) and broken fields of water and ice clouds on UV irradiances
- inferring daily UVB and UVA doses from a single satellite overpass
- biases that arise when comparing the different footprints from the ground and from space
- advances in instrumentation and calibration
- UVB and UVA trends and climatology.

In addition, presentations are encouraged that quantify the effects of UVB on plants, human health, ecosystems, and materials. Topics include:

- effects of UV direct and diffuse irradiances on the various stages of plant development
- the sensitivity of plants to varying ratios of UVB/UVA/PAR
- UVB effects on litter decomposition
- cumulative (multi-year) effects of UVB on trees
- the harmful (skin cancer, cataracts, immune system repression) and beneficial (Vitamin D synthesis) effects of UVA and UVB on human health
- effects of UVB on cellular levels of plants and humans
- effects of multiple stressors (UVB, drought, temperature, CO<sub>2</sub>)
- the penetration of UV into oceans where the ecology (e.g. coral reefs) or the food chain can be affected (e.g., phytoplankton).

**Abstract Due Date: 2 January, 2001**

**Manuscript Due Date: 2 July, 2001**

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**Submissions imply the intent of at least one author to register, attend the symposium, and present the paper (either orally or in poster format).**

Your abstract must include all of the following:

1. **SUBMIT TO:** AM100, SLUSSER/HERMAN/GAO
2. **SUBMIT EACH ABSTRACT TO ONE CONFERENCE**  
**ONLY** UV Ground- and Space-Based Measurements, Models, and Effects (AM100)
3. **ABSTRACT TITLE**
4. **AUTHOR LISTING** (principal author first)  
For all authors: First (given) name (initials not acceptable), Last (family) name, Affiliation, Mailing address, Telephone, Fax, and Email address.
5. **PRESENTATION**  
Indicate your preference for "Oral Presentation" or "Poster Presentation." Final placement is subject to chairs' discretion.
6. **ABSTRACT TEXT**  
Approximately 250 words.
7. **KEYWORDS**  
List a maximum of five keywords.
8. **BRIEF BIOGRAPHY** (principal/presenting author)  
Approximately 50 words.

### Conditions of Acceptance

- Authors are expected to secure registration fees and travel and accommodation funding, independent of SPIE, through their sponsoring organizations before submitting abstracts.
- Only original material should be submitted.
- Commercial papers, descriptions of papers with no research/development content, and papers where supporting data or a technical description cannot be given for proprietary reasons will not be accepted for presentation in this symposium.
- Abstracts should contain enough detail to clearly convey the approach and the results of the research.
- Government and company clearance to present and publish should be final at the time of submittal.
- Applicants will be notified of acceptance by mail no later than 7 May, 2001. Early notification of acceptance will be placed on the SPIE Web site the week of 16 April, 2001 at [www.spie.org/info/am/](http://www.spie.org/info/am/)

### Paper Review

To ensure a high-quality conference, all abstracts and *Proceedings of SPIE* papers will be reviewed by the Conference Chairs for technical merit and content.

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### Oral or Poster Presentation

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### *Proceedings of SPIE*

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